SANTA CLARA-ALAMEDA-SAN BENITO WATER AUTHORITY

Directors

Frank J. Polak, President	G. C. Archibald	Edward H. Hanna
Sam Abinante	Irvin Dethlefson	Francis Silliman

WATER SERVICE TO THE MUNICIPALITIES IN NORTHERN SANTA CLARA VALLEY, FROM THE PROPOSED AIRPOINT RESERVOIR COMPARED TO SERVICE FROM THE PROPOSED PACHECO PASS AQUEDUCT TO THE SAME MUNICIPALITIES

Based on Reports

By

The Santa Clara Valley Water Conservation District

and

Mark Thomas and Company
Consulting Civil Engineers

By

George L. Sullivan
Consulting Engineer
April 20, 1959

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SAN JOSE, CALIFORNIA 95118

By

George L. Sullivan
Consulting Engineer
April 20, 1959.

LETTER OF SUBMITTAL

April 20, 1959.

TO THE

Honorable Board of Directors,
Santa Clara-Alameda-San Benito Water Authority,
15420 Almaden Road,
San Jose, California.

Gentlemen:

Pursuant to your instructions I herewith submit a Report upon the WATER SERVICE TO THE MUNICIPALITIES IN NORTHERN SANTA CLARA VALLEY FROM THE PROPOSED AIRPOINT RESERVOIR COMPARED TO SERVICE FROM THE PROPOSED PACHECO PASS AQUEDUCT TO THE SAME MUNICIPALITIES.

This Report presents

A - Summary and Conclusions

B - Introduction

- Quantities and Costs of Water from Pacheco Pass Aqueduct
- Quantities and Costs of Water from South Bay Aqueduct
- Considerations other than Costs
    - Milpitas
    - Authorized Project
    - Relations with adjacent areas
    - San Luis Reservoir
    - Replenishment of Underground Water
- Conclusions

The above items and conclusions are based on Reports by the Santa Clara Valley Water Conservation District and by Mark Thomas and Company.

Respectfully submitted,

George L. Sullivan.
George L. Sullivan,
Consulting Engineer.

GLS:mc

A

SUMMARY AND CONCLUSIONS

HISTORY AND ASSUMPTIONS.

The California Department of Water Resources published an "Office Report on South Bay Alternative Route Studies" dated April 21, 1958. This study outlines three alternates which are labeled "Plan I", Plan II", and "Plan III". These three plans are alternate methods of bringing water from the Feather River Aqueduct (or from the Delta Mendota Canal) into Alameda, Santa Clara and San Benito Counties. (This has since been extended to include service to the Pajaro River in Santa Cruz and Monterey Counties.) This study concluded that Plan I, the original South Bay Aqueduct, is the most expensive; Plan II, serving Alameda County and Northern Santa Clara County, from a shortened South Bay Aqueduct and San Benito County from a Pacheco Pass Aqueduct, is next in cost; and Plan III, serving Alameda County from a further shortened South Bay Aqueduct and Santa Clara and San Benito Counties from a proposed Pacheco Pass Aqueduct, is cheapest. The study also concluded that, while Plan I is too expensive, Plan II has a certain advantage which makes it more attractive than Plan III. This advantage is the possibility of serving the municipalities in northern Santa Clara Valley from the South Bay Aqueduct via Airpoint Reservoir as shown in Plan II. However, the cost of this proposed service to the municipalities is not estimated in the Report and the possibility of these cities receiving service from the Santa Clara Valley Water Conservation District is not considered in the Report. The serving of these municipalities is a local problem and its consideration would be logically omitted from a State Report.

The Santa Clara-Alameda-San Benito Water Authority is a local organization which is specifically concerned with such local problems. It therefore requested the Santa Clara Valley Water Conservation District to report on its plans to serve the municipalities in northern Santa Clara Valley and on the cost of such service. It also engaged Mark Thomas & Company, Civil Engineers, to design and estimate the cost of a distribution system from Airpoint Reservoir to these municipalities. In both reports it is assumed that the water consumption of these municipalities will increase to 40,000 acre-feet per year by 1990 and to 80,000 acre-feet per year by 2010. 4% interest, 50 year life of equipment and structures, a 2½ million dollar water treatment plant with a cost of $6.00 per acre-foot for operation and maintenance of the treatment plant are also assumed in both reports.

SUMMARY AND CONCLUSIONS.

The estimated costs shown in Table A are the average costs required to convey the water from Coyote Creek below Anderson Dam to percolation areas and to the municipalities in northern Santa Clara Valley. The estimated costs shown in Table B are the average costs required to convey the water from the proposed Airpoint Reservoir to the municipalities. Both these reports are now available and the estimated costs, using stage construction, are as follows:

TABLE A

QUANTITIES AND COSTS OF WATER FROM THE PROPOSED PACHECO PASS TUNNEL AS SHOWN BY THE SANTA CLARA VALLEY WATER CONSERVATION DISTRICT REPORT

Total Quantity of water delivered 1960-2010	=	3,305,000 A.F.
" Capital cost of first stage	=	$11,615,000
" " " " second stage	=	8,801,000
" " " 1960-2010	=	$20,416,000
" 50 year cost of the project including operation and maintenance	=	$62,535,000
Average cost of water per A.F. for the 50 years of operation.	=	$18.92/A.F.

TABLE B

QUANTITIES AND COSTS OF WATER FROM THE PROPOSED AIRPOINT RESERVOIR AS SHOWN BY THE MARK THOMAS & COMPANY REPORT.

Total Quantity of Water delivered 1960-2010 = 2,000,000 A.F.
" capital cost of first stage = $12,500,000
" " " " second stage = 9,000,000

" " " 1960-2010 = $21,500,000

" 50 year cost of project including maintenance and operation. . . . . . . = $52,620,000

Average cost of water per A.F. for the 50 years of operation. . . . . = $26.31/A.F. - 8.10 = $18.21

The above figures indicate that the cost per acre-foot of water brought in from the proposed Pacheco Pass Aqueduct would cost $7.39 per acre-foot less on the average than water brought in from the proposed Airpoint Reservoir. This would be a saving of $14,780,000 in 50 years. This saving is due quite largely to the fact that the Santa Clara Valley Water Conservation District has a $13,000,000 conservation and distribution system which can be integrated with a piped system to the municipalities with a resultant saving to both. Since most of these municipalities are in the District and their citizens have paid taxes which helped purchase this $13,000,000 system, they are entitled to any possible saving due to the use of the system. For instance, the use of Calero Reservoir as a regulating reservoir saves an estimated cost of $3,500,000 which would be necessary for the proposed Airpoint Reservoir. (The State Progress Report estimates the cost of this reservoir at $3,885,000). The Calero Reservoir is already in use and could serve both parts of the proposed Santa Clara Valley Water Conservation District System. It appears therefore that Plan III, as outlined in the State's Office Report, is not only cheaper than Plan II for the State, as indicated by the State Report, but is also cheaper locally.

CONSIDERATIONS OTHER THAN COSTS.

1 - The Milpitas area is not served by the Santa Clara Valley Water District Plan. However, Milpitas does have three possible sources of water: Hetch Hetchy service, local wells and reclaimed sewage.

2 - The Pacheco Pass Aqueduct is not specifically authorized by the State Legislature. However, it is the same as the South Bay Aqueduct by a different route and as such is authorized in essence.

3 - Experience indicates that the water interests of Alameda and Santa Clara Counties clash while the water interests of Santa Clara, San Benito, Santa Cruz and Monterey have much in common. It would therefore be much easier to write a contract for the division of water and its costs between Santa Clara, San Benito, Santa Cruz and Monterey Counties than between Santa Clara and Alameda Counties.

4 - The possibility of the construction of the San Luis dam and reservoir is very promising. It would be the height of folly to have 2 million acre-feet of water just over the Pacheco Pass without any means of using it in the valleys to the west.

5 - The design of the South Bay Aqueduct as proposed in Plan II makes no provision for the extra water needed to replenish the underground and stop subsidence in Santa Clara Valley. This water is very necessary.

CONCLUSIONS.

The above mentioned costs, conditions and other facts indicate that as of today, the preponderance of facts favor bringing water to the municipalities in northern Santa Clara Valley via a Pacheco Pass Aqueduct, rather than via the proposed South Bay Aqueduct. It should be kept in mind however that new facts, such as findings of the Army Engineers in their San Francisco Bay study , might introduce new factors which would change the present conclusion. Until such new factors develop, no other conclusion except the above seems logical. It must also be kept in mind that estimated costs listed above are average costs only and are not prices which may be charged. Prices cannot be determined until pricing policies have been established.

B

WATER SERVICE TO THE MUNICIPALITIES IN NORTHERN SANTA CLARA VALLEY, FROM THE PROPOSED AIRPOINT RESERVOIR COMPARED TO SERVICE FROM THE PROPOSED PACHECO PASS AQUEDUCT TO THE SAME MUNICIPALITIES.

INTRODUCTION.

In 1951 the California State Legislature authorized the Feather River Project for construction by the State. This project consists of the Oroville Dam on the Feather River 5½ miles above the City of Ororville, the Delta Cross Channel from the Sacramento River to the northeast corner of Alameda County, a channel to transport water from the Delta Cross Channel to the San Joaquin Valley and Southern California and the South Bay Aqueduct together with the necessary transmission lines, pumping plants and power houses and their appurtenances. While the Legislature authorized this project for construction in 1951 it has not as yet appropriated any money for its construction. It has appropriated funds for engineering for rights of way and for moving utilities but none for construction.

One of the features of the Feather River Project is the proposed Feather River Aqueduct which is parallel and close to the Delta-Mendota Canal east of the Mount Hamilton Range. It is planned that this Feather River Aqueduct shall start at the northeast corner of Alameda County and go south past the proposed San Luis Reservoir and thence on to serve territory to the south. The Delta Mendota Canal is owned and operated by the Bureau of Reclamation and it is planned to connect both to the San Luis Reservoir so that the Reservoir will receive water from both the Federal and State water supplies.

In order to provide service for Alameda, Santa Clara, San Benito, and possibly Contra-Costa Counties, an aqueduct was planned which would branch off from the Feather River Aqueduct. This branch, which was originally called the ALAMEDA-SANTA CLARA-SAN BENITO BRANCH OF THE FEATHER RIVER AQUEDUCT, is now called the SOUTH BAY AQUEDUCT. As originally planned, it was to start in the northeast corner of Alameda County and go through Alameda and Santa Clara Counties to the boundary of San Benito County. Studies which have been made since 1956 by the California Department of Water Resources indicate that it would be cheaper to bring at least some of the water to Santa Clara and San Benito Counties via a Pacheco Pass Aqueduct from one or all of the Delta Mendota Canal, the Feather River Aqueduct and the San Luis Reservoir. The Santa Clara-Alameda-San Benito Water Authority, a local agency organized to investigate possible sources of supplemental water for this area and to determine the cheapest method for supplying this area, also concluded that any plan to bring supplemental water into Santa Clara, San Benito, Santa Cruz and Monterey Counties should include a Pacheco Pass Aqueduct.

The California Department of Water Resources issued an OFFICE REPORT ON SOUTH BAY AQUEDUCT ALTERNATIVE ROUTE STUDIES dated April 21, 1958, and on June 27, 1958, it issued a PROPOSED DESIGN PROGRESS REPORT ON SOUTH BAY AQUEDUCT. The "Office Report" outlines three plans for the South Bay Aqueduct and recommends Plan II. The "Progress Report" accepts the recommendation of the "Office Report" and confines its study to Plan II only. These three plans are as follows:

PLAN I.

This is the originally proposed "Alameda-Santa Clara-San Benito Branch of the Feather River Project" starting in the northeastern corner of Alameda County and going about 108 miles through Alameda and Santa Clara Counties.

This plan was estimated by the Department of Water Resources to cost $62,800,000 and to deliver water at a cost of $30 per acre-foot.

PLAN II.

This Plan breaks the project into two parts: Part (a) is the original South Bay Aqueduct shortened back to Airpoint, about 2½ miles into Santa Clara County and having a total length of about 36 miles. This part of the project would serve Alameda and the northern part of Santa Clara County. It is estimated to cost $32,500,000 and to deliver water at an average cost of $23 an acre-foot. Part (b) is the Pacheco Pass Aqueduct. This would serve San Benito County only and is estimated to cost $15,200,000 and to deliver water at a cost of $30 per acre-foot.

PLAN III.

This Plan also breaks the project into two parts. Part (a) is the original South Bay Aqueduct shortened back to del Valle Reservoir in Alameda County. It is estimated in the "Office Report on South Bay Aqueduct Alternative Studies" to cost $13,600,000 and to deliver water at a cost of $25 an acre-foot. This design has been further modified so as to reduce the estimated cost to $7,900,000 for the initial construction. Part (b) is the Pacheco-Morgan Hill Aqueduct. This would serve Santa Clara and San Benito Counties . (As now planned, it would also serve the Pajaro area in Santa Cruz and Monterey Counties.) Part (b) is estimated to cost $29,300,000 and to deliver water at a cost of $22.50 an acre-foot. (This $22.50 per acre-foot includes a charge of $5 per acre-foot extra for taking water at San Luis Reservoir instead of at Brushy Peak Pumping Plant in Alameda County. It is doubtful if this charge should be applied. NOTE: The cost of water at the entrances to the aqueducts must be added to each of the above estimated costs to obtain the total cost.

The "Progress Design Report on South Bay Aqueduct" estimates the capital cost of Plan II at $37,428,600. This is about $10,300,000 less than the estimated capital cost given on page 12 of the "Office Report on South Bay Aqueduct Alternative Route Studies". A similar saving could probably be made by redesigning Plan III. The "Progress Design Report on South Bay Aqueduct" does not estimate the costs of Plan III although on page 3 it does indicate that Plan III should be considered when it says, in paragraph C, "The possibility that water for Santa Clara County, or a portion of that water, might be imported from San Luis Reservoir through a tunnel under Pacheco Pass must be recognized."

All the above mentioned data indicates that the capital cost of Plan III would be less than the capital cost of Plan II and that the unit cost of water would be less under Plan III than under Plan II. The "Office Report on South Bay Aqueduct Alternative Studies" says on page 14: "The logical point of delivery for surface distribution of imported water would be in the vicinity of Milpitas," and on page 16 the statement is made that: "Since the cost differential between Plan II and Plan III is relatively small, the functional advantages of Plan II warrant its recommendation." The"Progree Design Report on South Bay Aqueduct" concurs in this recommendation but neither report offers any data supporting this conclusion. Since this is a local problem and the State Department of Water Resources states that local organizations should solve local problems, the Santa Clara-Alameda-San Benito Water Authority decided to investigate the problem of serving the municipalities of norther Santa Clara Valley. An alternative to supplying water to the municipalities in northern Santa Clara Valley from a reservoir at Airpoint is to supply it from the Santa Clara Valley Water Conservation District System.

This is a $13,000,000 system which is already serving most of northern Santa Clara Valley. Plans for the expansion of this system to serve the municipalities in northern Santa Clara Valley through closed pipes is being worked out by the District. The Santa Clara-Alameda-San Benito Water Authority therefore requested the Santa Clara Valley Water Conservation District to furnish the Water Authority with a report on its plans for serving the municipalities in northern Santa Clara Valley with water and an estimate of the cost of such service. At the same time the Water Authority engaged Mark Thomas and Company, Civil Engineers, to design and estimate the cost of a pipe system suitable for conveying water from the proposed Airpoint Reservoir to the municipalities of nothern Santa Clara Valley. Both the reports have been submitted and it is now possible to make a rational comparison of the two plans for serving the municipalities in northern Santa Clara Valley.

ASSUMPTIONS.

The Santa Clara Valley Water Conservation District assumes that supplemental water from the proposed Pacheco Tunnel will be available at Coyote Creek near Morgan Hill. Mark Thomas & Co. assumes that supplemental water from the South Bay Aqueduct will be available at the proposed Airpoint Reservoir. Both assume that the demand for this water by the municipalities will have increased to 40,000 acre-feet per year by 1990 and to 80,000 acre-feet per year by 2010. The Santa Clara Valley Water Conservation District plans to extend its present system in order to replenish the water in the ground under the valley to check the subsidence of the floor of the valley. This will also reduce the cost of pumping and ~~to~~ provide storage of water for dry years. This must be done whether the municipalities are served through a system of surface pipes or not. The District therefore assumed that these two services would be integrated and the overall cost thus decreased. Both Plans assume a $2,500,000 treatment plant having an average annual maintenance and operation cost for the treatment plant of $6 per acre-foot and both assume water delivered at comparable locations under low pressures which will require booster pumps to be furnished by the municipalities. All costs are figured on the basis of 50 year life for facilities and 4% interest on capital.

COSTS.

Costs of both plans were figured for single construction sufficient for 50 years and also for stage construction in which the first stage would provide facilities necessary for 1960 to 1990 and the second stage would provide the added facilities necessary from 1990 to 2010. Since both estimates indicated that stage construction would be the cheaper, it is herein assumed that stage construction will be used. The costs for single construction are given in both reports but are not repeated herein.

It should be kept in mind however that the plan for serving the municipalities from Airpoint Reservoir is limited to the delivery of 2 million acre-feet of water during the next fifty years while the plan for serving these municipalities through the Santa Clara Valley Water Conservation District provides for a delivery of 2 million acre-feet of water to the municipalities in the next fifty years but also provides for the delivery of 1,305,000 acre-feet of water for percolation into the underground of the Valley. The cost comparison will therefore have to be confined to the comparison of the unit costs for each project since they are not of the same magnitude.

It should also be kept in mind that "costs" are average costs necessary to convey the water from the source to the consumer. They are not necessarily the price which the consumer will have to pay and there is no implication that all consumers will have to pay the same price. Until State and Federal appropriations are known and the method of division of costs determined there is no possibility of the prediction of prices. Costs are definite however; someone must pay them.

The following quantities and costs are taken directly from the reports of the Santa Clara Valley Water Conservation District and of Mark Thomas and Company.

QUANTITIES and COSTS OF WATER FROM THE PROPOSED PACHECO PASS TUNNEL AS SHOWN BY THE SANTA CLARA VALLEY WATER CONSERVATION DISTRICT REPORT

Total Quantity of water delivered 1960-2010	=	3,305,000 A.F. ?
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" " " 1960-2010	=	$20,416,000
" 50 year cost of the project including operation, maintenance and capital	=	$62,535,000
Average cost of Water per A.F. for the 50 years of operation.	=	$18.92/A.F.

QUANTITIES and COSTS OF WATER FROM THE PROPOSED AIRPOINT RESERVOIR AS SHOWN BY THE MARK THOMAS & COMPANY REPORT.

Total quantity of water delivered 1960-2010	=	2,000,000 A.F.
" capital cost of first stage	=	$12,500,000
" " " " second stage	=	9,000,000
" " " 1960-2010	=	$21,500,000
" 50 year cost of project including maintenance, operation and capital	=	$52,620,000
Average cost of water per A.F. for the 50 years of operation.	=	$26.31/A.F.

The above figures indicate that the average cost per acre-foot of water brought in from the proposed Pacheco Pass Aqueduct to Santa Clara Valley would be $7.39 per acre-foot less on the average than if brought in from the proposed Airpoint Reservoir. This would be a saving of $14,780,000 in 50 years. This saving is due quite largely to the fact that the Santa Clara Water Conservation District has a $13,000,000 conservation and distribution system which can be integrated with a piped system to the municipalities. Much of this integrated system can be used to serve both percolation into the underground and surface delivery to the municipalities. In this way money would be saved for both. For instance, the use of Calero Reservoir as a regulating reservoir saves an estimated capital cost of $3,500,000 which would be necessary for the proposed Airpoint Reservoir. (The State Progress Design Report estimates the cost of this reservoir at $3,885,000). The Calero Reservoir is already in use and could serve both parts of the [illegible] Santa Clara Valley Water Conservation District proposed system. It appears therefore that Plan III, as outlined in the State's Office Report, is not only cheaper than Plan II for the State, as indicated by the State Report, but is also cheaper for local units.

Considerations Other Tham Costs.

There are other matters besides cost which should be considered when deciding whether the proposed South Bay Aqueduct or the proposed Pacheco Pass Aqueduct is more desirable as a source of water for the municipalities of this valley. Some of these are:

1 - Milpitas. The Milpitas area is not served by the Santa Clara Valley Water Conservation District system. However, the Milpitas area does have three sources of water. (1) It is now being served with Hetch Hetchy Water.

(2) The indications are that there is a well field in this area which would yield sufficient water for local needs. (3) The San Jose Sewage Treatment Plant is in this vicinity and, when secondary treatment is available, there will be some 30,000 acre-feet of water available for irrigation. This would relieve the draft on the underground.

2 - Pacheco Pass. The Pacheco Pass Aqueduct is not in the authorized Feather River Project. However, the South Bay Aqueduct which is specifically in the authorized Feather River Project, is a structure for bringing water from the Feather River project (or from the Delta Mendota Canal) into Alameda, Santa Clara and San Benito counties. The combination of the South Bay Aqueduct and the Pacheco Pass Aqueduct is the same thing in a modified form. The official description of the Feather River Project, which was authorized in 1951, says that details will necessarily be changed. It would seem therefore that the Pacheco Pass Aqueduct has been authorized in essence. ?

3 - Relations with Adjacent Areas. If water for Santa Clara Valley is brought in via the South Bay Aqueduct it will create a local North-South problem similar to the State North-South problem. Past experience indicates that the water interest of Santa Clara, San Benito, Santa Cruz and Monterey Counties have much in common but that the interest of these counties and those of Alameda County clash. When the State Department of Water Resources requested that 10 million dollars be appropriated for the intial construction of the South Bay Aqueduct in order to bring water into Alameda County, the Santa Clara-Alameda-San Benito Authority endorsed the request unconditionally but requested that a like amount be appropriated for the Pacheco Pass Aqueduct. Alameda officials refused to endorse the request for funds for the Pacheco

Pass Aqueduct on the grounds that to do so would be detrimental to their interests. On the other hand San Benito, Santa Cruz and Monterey people joined with the Water Authority in approving the request for an appropriation for initial construction of the Pacheco Pass Aqueduct.

It would probably be much more difficult to work out a satisfactory contract between Santa Clara and Alameda Counties than between Santa Clara, San Benito, Santa Cruz and Monterey Counties. Bulletin No. 2 of the State Water Resources Board estimates that the development of the Alameda Bayside Unit will require 150,000 acre-feet of additional water per year. Apparently the South Bay Aqueduct design has no provision for this water and the possible necessity of supplying this water adds one more difficulty to the problem of writing a satisfactory Santa Clara-Alameda contract.

San Luis Reservoir. (Isn't this principally for the use & benefit of So. Calif.?)

At the present time the possibility of the construction of the San Luis dam and reservoir seems to be very promising. When this project is completed, Santa Clara County, San Benito County and the areas in Santa Cruz and Monterey Counties bordering on the Pajaro River will have some 2 million acre-feet of water stored at their back doors. The South Bay Aqueduct does not offer any such storage on which to draw.

Replenishment of Underground Water.

The floor of Santa Clara Valley has subsided alarmingly the last thirty years. Records indicate that the rate of this subsidence varies directly as the depth to the underground water level. It is therefore essential that the underground water level be raised. It is estimated that about one million acre-feet of water is required to be added to the present underground supply in order to bring it to a level which will stop subsidence. All indications

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are that the floor of the valley can never be brought to its original level but that the subsidence can be stopped. About one million acre-feet of water therefore needs to be added to the underground of the Valley. Provision for this is not provided by the present design of the South Bay Aqueduct.

CONCLUSION.

The above mentioned costs, conditions and other facts indicate that, as of today, the preponderance of facts favor supplying water for the municipalities in the northern part of the Valley via Pacheco Pass rather than via Airpoint Reservoir. The attached reports indicate that the Santa Clara Valley Water Conservation District could distribute a combined supply of water for the municipalities in the northern part of the Valley and for percolation into the underground for an average cost of about $7.40 per acre-foot less then the average cost of a supply of water distributed to these municipalities from the proposed Airpoint Reservoir.

This is on the assumption that the water for the District would be available at Coyote Creek below Anderson Dam and that the supply for the municipalities alone would be available at the proposed Airpoint Reservoir.

This possible saving is due largely to the fact that the District has a 13 million dollar system already in use which could be integrated into a system for surface supply and percolation, both.

It must be kept in mind, however, that all costs quoted are average costs and not prices which will be charged to particular consumers. These cannot be determined until pricing policies have been established. It should also be kept in mind that new facts, such as findings of the Army Engineers in their San Francisco Bay Study, might introduce new factors which would change the present conclusion. Until such new factors develop, no other conclusion except the above seems logical.

LETTER OF SUBMITTAL

April 20, 1959.

TO THE

Honorable Board of Directors,
Santa Clara-Alameda-San Benito Water Authority,
15420 Almaden Road,
San Jose, California.

Gentlemen:

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The above items and conclusions are based on Reports by the Santa Clara Valley Water Conservation District and by Mark Thomas and Company.

Respectfully submitted,

George L. Sullivan,
Consulting Engineer.

GLS:mc

SUMMARY AND CONCLUSIONS

INTRODUCTION -

The California Department of Water Resources published an "Office Report on South Bay Alternative Route Studies" dated April 21, 1958. This study outlines three alternates which are labeled "Plan I," "Plan II" and "Plan III". These three plans are alternate methods of bringing water from the Feather River Aqueduct (or from the Delta Mendota canal) into Alameda, Santa Clara and San Benito Counties. (This has since been extended to include service to the Pajaro River in Santa Cruz and Monterey Counties.) This study concluded that Plan I, the original South Bay Aqueduct, is the most expensive, Plan II, serving Alameda County and Northern Santa Clara County, from a shortened South Bay Aqueduct and San Benito County from a Pacheco Pass Aqueduct, is next in cost, and Plan III, serving Alameda County from a further shortened South Bay Aqueduct and Santa Clara and San Benito Counties from a proposed Pacheco Pass Aqueduct, is cheapest. The study also concluded that, while Plan I is too expensive, Plan II has a certain advantage which makes it more attractive than Plan III. This advantage is the possibility of serving the municipalities in northern

Santa Clara Valley from the South Bay Aqueduct via Airpoint Reservoir as shown in Plan II. However, the cost of this proposed service was not estimated in the Report and the possibility of these cities receiving service from the Santa Clara Valley Water Conservation District was not considered in the Report. The serving of these municipalities is a local problem and its consideration would be logically omitted from a State Report.

The Santa Clara-Alameda-San Benito Water Authority is a local organization which is specifically concerned with such local problems. It therefore requested the Santa Clara Valley Water Conservation District to report on its plans to serve the municipalities in northern Santa Clara Valley and on the cost of such service. It also engaged Mark Thomas & Company, Civil Engineers, to design and estimate the cost of a distribution system from Airpoint Reservoir to these municipalities. Both these reports are now available and the estimated costs, using stage construction, are as follows:

? State Rep

QUANTITIES and COSTS of Water from the Proposed Pacheco Pass Tunnel as shown by the Santa Clara Valley Water Conservation District Report

Total Quantity of water delivered 1960-2010	= 3,305,000 A.F.
" Capital cost of first stage	= $11,615,000
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" 50 year cost of the project including operation and maintenance	= $62,535,000
Average Cost of Water per A. F. for the 50 years of operation	= $18.92

Do these figures take into account 5% annual increase in [illegible] costs?

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3126750.00

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3126750
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15633750
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Check [illegible]

33/771
23
66
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99

2/77
38

includes [illegible] but the State [illegible]

check $8.20 [illegible]

QUANTITIES and COSTS of Water from the Proposed Airpoint Reservoir as shown by the Mark Thomas & Company Report.

why is this less than the other project

Total quantity of water delivered 1960-2010 = 2,000,000 A.F.
" capital cost of first stage = $12,500,000 — This 1st stage could be constructed immediately
" " " " second stage = 9,000,000

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" 50 year cost of project including maintenance and operation. . . . . . . = $52,620,000 — 15.92
1.48
17.40

53,620,000

Average cost of water per A.F. for the 50 years of operation. . . . . = $26.31 A.F.

$17.04 [illegible]

The above figures indicate that the cost per acre-foot of water brought in from the proposed Pacheco Pass Aqueduct to the municipalities in northern Santa Clara Valley would cost these municipalities $7.39 per acre-foot less on the average than if brought in from the proposed Airpoint Reservoir. This would be a saving of $14,780,000 in 50 years. This saving is due quite largely to the fact that the Santa Clara Valley Water Conservation District has a $13,000,000 conservation and distribution system which can be integrated with a piped system to the municipalities with a resultant saving to both. For instance, the use of Calero Reservoir as a regulating reservoir saves an estimated cost of $3,500,000 which would be necessary for the proposed Airpoint Reservoir. (The State Progress Report estimates the cost of this reservoir at $3,885,000). The Calero Reservoir is already in use and could serve both parts of the proposed Santa Clara Valley Water Conservation District System. It appears therefore that Plan III, as outlined in the State's Office Report, is not only cheaper than Plan II for the State, as indicated by the State Report, but is also cheaper locally.

Considerations Other Than Costs.

There are other matters besides cost which should be considered when deciding whether the proposed South Bay Aqueduct or the proposed Pacheco Pass Aqueduct is more desirable as a source of water for this valley. Some of these are:

1 - The Milpitas area is not served by the Santa Clara Valley Water Conservation District. However, the Milpitas area does have three sources of water. (1) It is now being served with Hetch Hetchy Water. (2) The indications are that there is a well field in this area which is fed from the hills to the east. (3) The San Jose Sewage Treatment Plant is in this vicinity and, when secondary treatment is available, there will be some 30,000 acre-feet of water available for irrigation. This would relieve the draft on the underground.

2 - The Pacheco Pass Aqueduct is not in the authorized Feather River Project. However, the South Bay Aqueduct which is specifically in the authorized Feather River Project, is a structure for bringing water from the Feather River project (or from the Delta Mendota Canal) into Alameda, Santa Clara and San Benito counties. The combination of the South Bay Aqueduct and the Pacheco Pass Aqueduct is the same thing in a different form. The official description of the Feather River Project, which was authorized in 1951, says that details will necessarily be changed. It would seem therefore that the Pacheco Pass Aqueduct has been authorized in essence.

3 - Relations with Adjacent Areas

If water for Santa Clara Valley is brought in via the South Bay Aqueduct it will create a local North-South problem similar to the State North-South problem. Past experience indicates that the water interests of Santa Clara, San Benito, Santa Cruz and Monterey Counties have much in common but that the interests of these counties and those of Alameda County clash. When the State Department of Water Resources requested that 10 million dollars be appropriated for the initial construction of the South Bay Aqueduct in order to bring water into Alameda County, the Santa Clara-Alameda-San Benito Authority endorsed the request unconditionally but requested that a like amount be appropriated for the Pacheco Pass Aqueduct. Alameda officials refused to endorse the request for funds for the Pacheco Pass Aqueduct on the grounds that to do so would be detrimental to their interests. On the other hand San Benito, Santa Cruz and Monterey people joined with the Water Authority in approving the request for an appropriation for initial construction of the Pacheco Pass Aqueduct.

legal agreement would take care [illegible]

If Santa Clara County must depend on the water which comes through Alameda County it is apt to find itself in trouble if there are a number of consecutive dry years. Alameda would certainly supply its own needs before allowing water to go through to Santa Clara County. Bulletin No. 2 of the State Water Resources Board estimates that the development of the Alameda Bayside Unit will require 150,000 acre-feet of additional water per year. Apparently the South Bay Aqueduct design has made no provision for this water.

Completely false

When?

San Luis Reservoir

At the present time the possibility of the construction of the San Luis dam and reservoir seems to be very promising. When this project is completed, Santa Clara County, San Benito County and the areas in Santa Cruz and Monterey Counties bordering on the Pajaro River will have some

!

~~[illegible]~~ This will increase Feather River supplies to San Jose

What is yield? [illegible]

2 million acre-feet of water stored at their back doors. The South Bay Aqueduct does not offer any such storage on which to draw.

Replenishment of Underground Water

Santa Clara Valley needs about one million acre-feet of water to bring the ground water up to a level which will stop subsidence of the Valley floor level. Provision for this is not provided by the South Bay Aqueduct.

CONCLUSIONS

The above mentioned costs, conditions and other facts indicate that, as of today, the preponderance of facts favor bringing water into this area via a Pacheco Pass Aqueduct, rather than via the proposed South Bay Aqueduct. It should be kept in mind however that new facts such as findings of the Army Engineers in their San Francisco Bay study or actions by the State Legislature might introduce new factors which would change the present decision. Until such new factors develop, no other decision except the above seems logical.